

DECLARATION UNDER 37 C.F.R. § 1.132

Dear Commissioner:

I, Michael B. McShane, a resident of the city of Austin in the State of Texas, hereby state and declare as follows:

FACTS

1. I am currently employed in Austin, Texas, by Freescale Semiconductor, Inc. the assignee of the pending application. I am a technologist for in Freescale's intellectual property licensing group and I specialize in packaging technologies and manufacturing methods.

2. In 1968 I earned a Bachelor of Science in Mechanical Engineering from the University of Texas at Austin. I am an IEEE Fellow and in 2003 received the IEEE Exceptional Technical Achievement Award. In 2001 I received the Microelectronics Packaging Technologist of the Year Award. I was the 2000 program chairman and the 2002 general chairman for the IEEE Electronic Component and Technology Conference. I am on the Board of Directors of the IEEE/CPMT Society. I have been a keynote speaker for the International Microelectronics and System Conference. I am a named inventor on more than thirty issued U.S. patent on electronic packaging and assembly technologies, one of which was recognized as Motorola's patent of the year in 2000.

3. From 1968 until 1976 I was employed by Hughes Aircraft Company, Newport Beach, California as a Microelectronic Process Engineer. From 1976 until 2004 I was employed by Motorola, Inc. in Austin, Texas as an electronics packaging technologist. From 2004 until the present, I have been employed in Austin, Texas by Freescale Semiconductor, a Motorola spin-off and the assignee of U.S. Serial No. 09/928,737.

STATEMENTS

4. Tuttle et al. (U.S. Patent 5,612,513) discloses substantial flatness only across each enclosed circuit (See Col. 6, line 56). Unlike the pending Quan application, Tuttle et al. is silent with respect to the surface planarity across the continuous encapsulant. This is because as shown in FIG. 4 Tuttle et al. is concerned only with the flatness of the top surface of each enclosed circuit.

5. Tuttle et al. teaches being able to use components of unequal heights as part of the individual enclosed circuits (See Col. 1, line 66 thru Col. 2, line 1). Tuttle et al. teaches using enough encapsulant such that each enclosed circuit has a substantially flat top surface (See Col. 6, lines 55-57). This ensures that the tallest component is covered by the encapsulant (See Col. 6, lines 34-36 thru Col. 6, lines 55-57). Thus, substantial flatness is merely an indicator to ensure that only the necessary amount of encapsulant is used. Moreover, the only time Tuttle et al. mentions substantial flatness of the top surface of an enclosed circuit, it does so only in the context of ensuring that the tallest component of the enclosed circuit is covered by the encapsulant.

6. Tuttle et al. teaches pouring encapsulant into the cavity for each circuit (See Col. 7, lines 37-38). Tuttle et al. is silent with respect to overmolding.

7. Tuttle et al. has a flexible substrate to allow the final/finished product, a single package, to remain flexible (See Col. 2, lines 13-17, Col. 4, lines 8-10, Col. 6, lines 6-8 and Col. 7, lines 3-5). In order for the final product to remain flexible, the overlying encapsulant must also be flexible (See Col. 2, lines 24-27). Indeed, if the overlying encapsulant were not flexible, then Tuttle's final product would not be flexible.

8. Using automated pick and place equipment to manufacture the flexible package of Tuttle et al. may cause several problems for the flexible package. This is because

pick and place equipment uses vacuum to pick up and transfer single packages from a loading station to a workstation. During that transfer, the flexible package of Tuttle et al. may deform. This will cause intermittent contacts with testing equipment and open solder joints during the soldering process.

9. The Tuttle et al. package is directed toward an application where the package can be bent or flexed in an end-user product. The package taught by Quan et al. uses ceramic substrates or printed circuit board substrates that are inherently rigid. Such rigid substrates result in packages that are non-flexible and are therefore subject to breaking in the applications proposed by Tuttle et al. (See Col. 1, lines 32-35). Thus, the two packages are intended for two separate product applications, each with separate and distinct advantages.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. Executed on the date below in Austin, Texas:

Respectfully submitted,

2/17/09

Date

Michael B. McShane

Michael B. McShane